WHAT IS CLAIMED IS:

1. A local multipoint distribution system, comprising:

a central office unit for multiplexing a downstream data stream having an asynchronous transfer mode (ATM) cell structure, or demultiplexing an upstream data stream having the ATM cell structure; and

a head-end unit for modulating the multiplexed downstream data stream having the ATM cell structure provided from the central office unit, and demodulating an inputted upstream data into the data stream and forwarding the data stream to the central office unit, wherein

one of the central office unit or the head-end unit establishes a virtual channel between the central office unit and the head-end unit to enable bidirectional communication in a communication network, and provides a medium access control (MAC) protocol for routing a data, including the data stream, the downstream data stream, and the upstream data stream, to a corresponding destination.

2. The local multipoint distribution system of claim 1, wherein the head-end unit comprises:

a processor connected to the central office unit, for multiplexing or demultiplexing the data in the communication network, analysing and routing the data to the corresponding destination and providing a control data based on the data; and

a signalling circuit for connecting the virtual channel according to the control data of the processor.

3. The local multipoint distribution system of claim 2, wherein the head-end unit further comprises:

a modem for modulating and outputting the downstream data stream from the processor into a low frequency downstream data stream, or converting a low frequency upstream data stream into the upstream data stream having the ATM cell structure to be outputted to the processor;

a frequency converter for converting an intermediate frequency upstream data stream into the low frequency upstream data stream and forwarding the low frequency upstream data stream to the modem, or converting the low frequency downstream data stream into an intermediate frequency downstream data stream having an inter-media frequency bandwidth;

a combiner/divider for combining and outputting the intermediate frequency downstream data stream from the frequency converter, or dividing an inputted electrical signal and forwarding the inputted electrical signal to the frequency converter;

a light converter for converting and outputting the output signal of the combiner/divider into a light signal, or converting an upstream light signal into the inputted electrical signal; and

a central processing unit (CPU) for controlling the modem and the frequency converter.

4. The local multipoint distribution system of claim 2, wherein the processor forwards the control data to the signalling circuit, and multiples and transmits a user data according to the data to a peripheral device.

5. The local multipoint distribution system of claim 1, further comprising at least one server for managing a data base for storing a service profile of each of a plurality of subscribers.

6. The local multipoint distribution system of claim 1, wherein the central office unit comprises a network connection unit for multiplexing the downstream data stream, demultiplexing the upstream data stream, and routing the resulting data stream to a corresponding terminating party.

7. The local multipoint distribution system of claim 6, wherein the network connection unit comprises:

a signal processor for setting a virtual channel and a channel speed, and providing an ATM service corresponding to the virtual channel; and

a call processor having a MAC controller for controlling user modems according to MAC instructions when the signal processor is operating.

8. The local multipoint distribution system of claim 7, wherein the ATM signalling processing unit establishes the virtual channel with a permanent virtual connection or a switched virtual connection between the central office unit and the head-end unit.

9. The local multipoint distribution system of claim 8, wherein the ATM signalling processing unit provides a user-network interface and a network-network interface by selecting one of a constant bit rate, a variable bit rate, an unspecified bit rate, or an available bit rate.

10. The local multipoint distribution system of claim 6, wherein the virtual channel is established by the network connection unit and the MAC protocol is established by a processor of the head-end unit that is connected to the network connection unit for multiplexing or demultiplexing the data.

11. The local multipoint distribution system of claim 1, wherein the central office unit establishes the virtual channel between the central office unit and the head-end unit to enable bidirectional communication in the ATM network, and the head-end unit provides the MAC protocol for routing the data to the corresponding destination.

12. The local multipoint distribution system of claim 1, further comprising an outdoor unit for amplifying and providing frequency conversion to the modulated downstream data from the head-end unit for transmission to the corresponding destination, and for amplifying and providing frequency conversion to an upstream data from the corresponding destination as the upstream data stream for transmission to the head-end unit.

13. The local multipoint distribution system of claim 12, wherein the corresponding destination comprises:

an indoor unit that receives and modulates the amplified downstream data from the outdoor unit and transmits the upstream data to the outdoor unit; and

a peripheral device that receives the modulated amplified downstream data from the indoor unit, and transmits the upstream data to the indoor unit.

14. A method of communicating data in a local multipoint distribution system having a network connection unit, a head-end unit, and customer premises equipment, the method comprising:

establishing a virtual channel by performing a protocol communication from a first physical layer for prescribing wireless access media, to a second physical layer for providing wireless media control, of the customer premises equipment and either the network connection unit or the head-end unit;

connecting a communication path from one of the network connection unit and the head-end unit to a terminating party by performing a protocol communication between an adaption layer for signal processing to a user network interface layer of the customer premises equipment and said one of the network connection unit and the head-end unit;

processing the data between the terminating party and one of the network connection unit and the head-end unit; and

transmitting the data between the terminating party and one of the network connection unit and the head-end unit.

15. The method of claim 14, wherein:

the virtual channel is established between the network connection unit and the customer premises equipment;

the communication path from the network connection unit to a terminating party is connected between the network connection unit, and the customer premises equipment;

the data is processed between the network connection unit and the terminating party; and

the data is transmitted between the network connection unit and the terminating party.

16. The method of claim 14, wherein:

the virtual channel is established between the head-end unit and the customer premises equipment;

the communication path from the head-end unit to a terminating party is connected between the head-end unit and the customer premises equipment;

the data is processed between the head-end unit and the terminating party; and

the data is transmitted between the head-end unit and the terminating party.

17. The method of claim 14, wherein the step of connecting the communication path includes:

forwarding a resource information according to a traffic amount to a processing unit of the head-end unit by a bearer connection control protocol supported in the network connection unit; and

assigning a wireless resource using the resource information.

18. The method of claim 14, further comprising providing a constant correspondence relation between a local identification and a virtual path identifier/ virtual channel identifier(VPI/VCI) identifying each user application from all user applications.

19. The method of claim 18, wherein necessary service quality is supported to the head-end unit according to a negotiation by a signal processing when providing the constant correspondence relation.

20. A network communication unit of a local multipoint distribution system, comprising:

a converter that multiplexes or demultiplexes a data stream;

a signal processor that establishes a virtual channel to enable bidirectional communication of the data stream with a destination; and

a controller coupled to the signal processor, that controls a routing of the data stream to the destination.

21. The network communication unit of claim 20, wherein the controller includes a MAC controller which provides a medium access control protocol for the routing.

22. The network communication unit of claim 20, wherein the converter comprises:

a usage parameter control circuit, coupled to a central office unit, that detects errors in the established call connections and controls the usage of the established call connection;

a switch, coupled to the central office unit, that switches inputted asynchronous transfer mode cell data; and

a segmentation and reassembly circuit coupled to the usage parameter control circuit, the switch, and the signal processor for segmenting output data from the usage parameter control circuit and the switch, and assembling processed data from the signal processor.

23. The network communication unit of claim 20, wherein the signal processor sets the virtual channel and a channel speed, and provides an asynchronous transfer mode service corresponding to the virtual channel, and the controller accesses user modems according to medium access control instructions and assigns time slots and channels for communication with the user modems.

24. The network communication unit of claim 20, further comprising a MAC controller, coupled to the signal processor, that provides a medium access control protocol for the routing.

25. A head-end unit of a local multipoint distribution system, comprising:

a processor that provides a medium access control protocol for routing a data stream in a communication network;

a modem for modulating and outputting the data stream from the processor into a low frequency downstream data stream, or converting a low frequency upstream data stream into the data to be outputted to the processor;

a frequency converter for converting an intermediate frequency upstream data stream into the low frequency upstream data stream and forwarding the low frequency upstream data stream to the modem, or converting the low frequency downstream data stream into an intermediate frequency downstream data stream having an intermediate frequency bandwidth.

26. The head-end unit of claim 25, wherein the processor includes:

a signaling circuit that establishes a virtual channel between the head-end unit and a network communication unit to enable bidirectional communication in the communication network; and

a central processing unit for controlling the modem and the frequency converter.

27. The head-end unit of claim 26, wherein the head-end unit provides a switch function between the network connection unit and a destination.

28. The head-end unit of claim 26, wherein:

the processor is coupled to a network connection unit and multiplexes or demultiplexes the data stream, analyses and routes the data stream to a destination, and provides a control data based on the routed data stream; and

the signaling circuit connects the virtual circuit according to the control data of the processor.

29. The head-end unit of claim 26, wherein the processor forwards the control data to the signaling circuit and multiplies and transmits the user data to a peripheral device.

30. The head-end unit of claim 25, wherein the processor is coupled to a network connection unit for receiving a virtual channel information, to route the data stream based on the virtual channel information.

31. The head-end unit of claim 25, further comprising:

a combiner/divider for combining and outputting the intermediate frequency downstream data stream from the frequency converter, or dividing an inputted electrical signal and forwarding the inputted electrical signal to the frequency converter; and

a light converter for converting and outputting the output signal of the combiner/divider into the light signal, or converting an upstream light signal into the inputted electrical signal.